

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Alok K. Saxena et al.
Application No. : 09/987,955
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For : RTP, UPD, IP HEADER COMPRESSION ON THE CIRCUIT
SWITCHED TYPE AIRLINK ACCESS

Examiner : Nghi V Tran
Art Unit : 2151
Docket No. : 65187-209
Date : September 18, 2007

Board of Patent Appeals and Interferences
Washington, DC 20231

APPELLANT'S BRIEF (37 C.F.R. § 41.37)

This brief is in furtherance of the Notice of Appeal, filed in this case on July 18, 2007. The fees required under Section 1.17(c), and fees therefore, are submitted with this Appeal Brief.

Appellants appeal from the final rejection of claims 1-3, 5-7, 9, 10, 13-18, 21-30, and 32 of the above-identified application. This Brief on Appeal is submitted in response to the Office Action of April 18, 2007 (referred to herein as "the Office Action"), rejecting the claims. The appeal is proper because the claims have been rejected twice.

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I. REAL PARTY IN INTEREST

The real party in interest in the above-identified application is Clearwire Corporation, a Washington corporation, the assignee of record, which has its principal place of business at 4400 Carillon Point, Kirkland, Washington 98033.

II. RELATED APPEALS AND INTERFERENCES

No other appeals or interferences will directly affect, be affected by, or have a bearing on the Board of Patent Appeals and Interferences' decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 4, 8, 11, 12, 19, 20, and 31 were previously cancelled. Claims 1-3, 5-7, 9, 10, 13-18, 21-30, and 32 stand rejected and are the claims on appeal. No other claims are pending.

IV. STATUS OF AMENDMENTS

The applicants submitted an amendment after final under 37 C.F.R. § 1.116(b)(2) on August 23, 2007, to amend claims 9, 17, and 25 place these claims in better form for consideration on appeal. In an Advisory Action dated September 4, 2007, the Examiner refused to enter the amendment.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present application has pending independent claims consisting of system claims 1, 7, and 32, method claims 9 and 25, and machine-readable medium claim 17. These independent claims, depending on their type, claim a system, method, or media involving the processing of data packets in a network communication system in which only the payload and data header portions necessary for delivery of the payload are transferred from a base to a remote unit via a communication link. (See application, page 2, paragraph 6.)

The communication link is described in Figure 1 of the application is part of an overall communication network in which the link between a base 200 and a remote unit 202 is an airlink. Based on initial negotiation, the base uses various header fields to associate the identified context with the call as established during an initial negotiation phase and only the header field that needs to be transmitted along with a payload is compressed and transmitted with the payload. (Page 2, paragraph 5.)

A context processor 2000 analyzes a message received from a network 100 and creates an airlink between the base 200 and the remote unit 202. The context processor 2000 determines which data header fields are required for transmission via the airlink to the remote unit. (Pages 5-6, paragraphs 18-20.) A context identifier 2060 receives the relevant portions of the header along with the payload and associates the identified context with the airlink channel. (Page 6, paragraph 21.) To reduce the bandwidth requirement of data packet transmission, only the header field that needs to be transmitted along with the payload is compressed and transmitted with the payload. (Pages 1-2, paragraphs 3-6.)

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether under 35 U.S.C. § 103(a) claims 1-3, 5-7, 9, 10, 13-18, 21-30, and 32 are unpatentable over U.S. patent number 6,700,888 to Jonsson et al. (referred to herein as "Jonsson"), in view of U.S. patent number 6,680,921 to Svanbro et al. (referred to herein as "Svanbro").

ARGUMENTS

Background

Jonsson

Jonsson teaches a technique for manipulating header fields by altering the header fields, using header compression techniques, or violating the integrity of the header fields to be transmitted over the data communication path. [Condensed from abstract.] Improved header performance is achieved by “purposefully violating the integrity of such header fields in a manner that is transparent to the header compression scheme and that does not disturb the functionality of the header field.” (See column 2, lines 32-37.)

Svanbro

Svanbro teaches a technique for estimation of time stamps in a packet communication system. Svanbro discloses a separator (element 33 of Figure 3) that receives header information and separates the time stamp field information from other header information so that the time stamp information can be processed separately from the remaining header information. The remaining header information is compressed using conventional header compression techniques with the resulting compressed header being provided as part of a compressed header (element 22 of Figure 3). The time stamp information is separately processed, compressed, and added to the remaining header information to form a compressed header 22. (Column 4, line 27-column 5, line 4.) Figure 6 of Svanbro illustrates the decompression process when a data packet, comprising a payload and a header, is received. The received header 22' is the received version of the compressed header 22. The compressed header 22' is separated into conventional header fields and a time stamp data field. (Column 6, lines 29-60.)

- i. Arguments Heading I – The burden of proof has not been met to sustain the rejections under 35 U.S.C. § 103(a) of claims 1-3, 5-7, 9, 10, 13-18, 21-30, and 32 as being unpatentable over U.S. Patent No. 6,700,888 to Jonsson et al.

(referred to herein as “Jonsson”) in view of U.S. Patent No. 6,680,921 to Svanbro et al. (referred to herein as “Svanbro”).

a. Arguments Subheading I – A: Independent Claims 1, 7, and 32.

Independent claims 1, 7, and 32 have a structure that extracts header information and a compressor that compresses only relevant portions of the extracted header in addition, an identification module is configured to establish context identification using the compressed relevant portions of the header, such that not all header fields are transferred from the base to the remote unit.

Claim 1 is directed to a call context processor operable in a wireless system having a base and a remote unit and includes, in part, “a header compressor configured to compress only relevant portions of the extracted header, the relevant portions comprising a payload type header field.” Claim 1 also recites “an identification module configured to establish context identification using the compressed relevant portions of the header wherein the base transfers the associated payload and payload type header portion, less than the entire header, to the remote unit.”

Claim 7 recites, in part, “a header extractor configured to extract the header” and “a header compressor to compress only relevant portions of the extracted header, the relevant portions comprising a payload type header field.” Claim 7 also has a base and a remote unit and “an identification module configured to establish context identification using the compressed relevant portions of the header wherein the base transfers the payload to a remote unit and does not transfer the entire header to the remote unit.”

Claim 32 is directed to a call context processor for processing a data packet having a payload and a header. Claim 32 includes, in part, “a header extractor configured to extract the header” as well as “a header compressor configured to compress only relevant portions of the extracted header, the relevant portions comprising a source internet protocol (IP) address, a destination IP address, a source port, a destination port, a sequence number, and a time stamp.” The call context processor of claim 32 also recites “an identification module configured to establish

context identification using the compressed relevant portions of the header wherein the call context processor transfers the payload and only the relevant portions of the header, less than the complete header, to a remote unit.”

The April 18, 2007, Office Action asserts that Jonsson teaches a call context processor that includes “an identification module configured to establish context identification using the compressed relevant portions of the header [col. 1, ln. 58–col. 2, ln. 25].” (See Office Action page 3.)

The Examiner has mischaracterized Jonsson. Although the Examiner asserts that Jonsson teaches a call context processor, there is no such teaching contained within the reference. Jonsson describes a technique for manipulating header fields but does not ever discuss a call context processor. In fact, neither the word “call” or the word “context” appears in the reference. Nothing in Jonsson suggests the functionality of call context processing either explicitly or inherently.

The element identified by the Examiner as the identification module is merely a data field in the header that is referred to as an identification (ID) data field. The portion of Jonsson cited by the Examiner also refers to another data field, known as a time-to-live/hop-limit (TTL/HL) field. Jonsson describes these two fields as problematic for data compression schemes. The portion of Jonsson referred to by the Examiner never discusses context identification and does not teach or suggest an identification module.

The identification module recited in claims 1, 7, and 32 is a structural element that performs a function and is not merely a data field. Claims 1, 7, and 32 recite the identification module establishing context identification “using the compressed relevant header portions of the header.” Although the Office Action, at page 3, asserts that Jonsson discloses an identification module that establishes context identification using compressed header portions, nothing in the cited reference actually performs the function alleged by the Examiner. Thus, the Examiner has mischaracterized the teachings of Jonsson.

The April 18, 2007 Office Action admits that Jonsson does not explicitly show a header compressor configured to compress only relevant portions of the extracted header, the relevant portions comprising a payload type header field. The

Office Action further states that “Svanbro clearly suggests or discloses a header compressor configured to compress only relevant portions [i.e., time stamp compression] of the extracted header [fig. 3 and col. 4, ln. 8-col. 5, ln. 50], the relevant portions comprising other fields [i.e., item 32, of fig. 3].” (Office Action, page 3.)

The Examiner appears to define the entire header, including the time stamp header field and the other header fields in Svanbro as relevant portions. However, the Examiner ignores the fact that all header fields in Svanbro are ultimately combined and transmitted to a remote unit. Figure 3 of Svanbro illustrates that the entire header is transmitted to the remote unit. Svanbro merely separates the header data fields so that the time stamp header field is processed separately, but recombines the conventional header compression output 302 and the time stamp compression output 301 to form the compressed header 22. (See column 3, line 66–column 4, line 13.) Therefore, Svanbro does not teach or suggest transmitting less than the entire header. Jonsson also fails to disclose any system in which less than the entire header is transmitted. Jonsson asserts that header fields are altered in a manner that violates the integrity of the header fields but does not alter the functionality. (See column 3, lines 54-67.) Thus, neither Jonsson nor Svanbro teach or suggest transmitting anything less than all header fields.

This differs significantly from claim 1 in which “the base transfers the associated payload and payload header portion, less than the entire header, to the remote unit (emphasis added).” Claim 7 recites a base that “transfers the payload to a remote unit and does not transfer the entire header to the remote unit.” Claim 32 recites a call context processor that “transfers the payload and only the relevant portions of the header, less than the complete header, to a remote unit.” Consequently, claims 1, 7, and 32 stand in condition for allowance. Dependent claims 2, 3, 5, and 6 depend from claim 1 and are also in condition for allowance.

b. Arguments Subheading I-B: Independent Claim 9.

Claim 9 is a method claim for processing the data packet having a payload in the header which extracts the header from information extracted from an initial call

establishment negotiation and compresses only relevant portions of the extracted header, the relevant portions comprising a payload type header field. The method further includes establishing context identification using the compressed relevant portions of the header and transferring the associated payload and not transferring the complete header from the base to the remote unit.

The April 18, 2007, Office Action asserts that Jonsson discloses an identification module configured to establish context identification and cites column 1, line 58–column 2, line 25, of Jonsson in support of that contention. (See Office Action, page 3.) This assertion is incorrect and mischaracterizes Jonsson. The cited section of Jonsson merely discusses two types of data header fields that are difficult to process. One of the data fields is referred to as an identification data field. However, nothing in Jonsson suggests establishing context identification. Furthermore, the section of Jonsson cited by the Examiner does not suggest any processing to establish context identification using compressed portions of the data field. The cited section merely recognizes that two particular data fields are problematic for header compression operations. (See column 2, lines 8-10 and 22-25.) Therefore, the Examiner has mischaracterized Jonsson.

The Office Action admits that Jonsson does not show a header compressor that compresses only relevant portions of an extracted header, and cites Svanbro as teaching a header compressor that compresses only relevant portions. The Examiner's assertion mischaracterizes Svanbro. Svanbro discloses a technique for estimating time stamps in a data packet communication system to perform the time stamp estimation, Svanbro discloses, in Figure 3 and the accompanying description at column 4, line 25–column 5, line 4, that the time stamp data field is separated from the rest of the header and processed differently the remaining portions of the header are compressed using a conventional header compression 302 (see Figure 3) and combined with the separately processed time stamp field in the data header 22 of Figure 3.

Both Jonsson and Svanbro transfer all data header fields. The combination of references does not teach or suggest "transferring the associated payload and not transferring the complete header from the base to the remote unit," as recited in claim 9.

Consequently, claim 9 stands in condition for allowance. Dependent claims 10 and 13-16 depend from claim 9 and also stand in condition for allowance.

c. Arguments Subheading I-C: Independent Claim 17.

Claim 17 is a machine-readable medium claim with a plurality of executable instructions to “extract a header” and “compress only relevant portions of the extracted header, the relevant portions comprising a payload type header field.” Claim 17 also includes instructions to “establish context identification using compressed relevant portions of the header” and “transfer the payload and only the compressed relevant portions of the header, less than the entire header, to a remote unit.”

The April 18, 2007, Office Action asserts that Jonsson teaches a call context processor that includes “an identification module configured to establish context identification using the compressed relevant portions of the header [col. 1, ln. 58–col. 2, ln. 25].” (See Office Action, pages 2-3.) The Examiner has mischaracterized Jonsson. Jonsson is unrelated to call context processing and does not teach or suggest anything related to call context processing. The Office Action incorrectly asserts that Jonsson discloses an identification module that establishes context identification. The section of Jonsson cited in support of this contention describes an ID data field, which is merely one data field in the header. Nothing in Jonsson suggests a machine-readable medium with instructions to establish context identification using the compressed relevant portions of the header. The section of Jonsson does not teach or suggest any context identification and does not teach or suggest any use for compressed relevant portions of a header.

The Office Action admits that Jonsson does not show a header compressor that compresses only relevant portions of an extracted header, and cites Svanbro as teaching a header compressor that compresses only relevant portions. The Examiner’s assertion mischaracterizes Svanbro. Svanbro discloses a technique for estimating time stamps in a data packet communication system to perform the time stamp estimation, Svanbro discloses, in Figure 3 and the accompanying description at column 4, line 25–column 5, line 4, that the time stamp data field is separated from the rest of the header

and processed differently the remaining portions of the header are compressed using a conventional header compression 302 (see Figure 3) and combined with the separately processed time stamp field in the data header 22 of Figure 3. However, the system of Svanbro transmits all header fields and does not teach or suggest a process to “transfer the payload and only the compressed relevant portions of the header, less than the entire header, to a remote unit,” as recited in claim 17.

Thus, the combination of Jonsson and Svanbro do not teach or suggest context identification using compressed relevant portions of the header and the transfer of only compressed relevant portions of the header, less than the entire header, to a remote unit. Consequently, claim 17 stands in condition for allowance. Claims 18 and 21-24 depend from claim 17, and are also in condition for allowance.

d. Arguments Subheading I-D: Independent Claim 25.

Claim 25 is a call processing method claim for processing the data packet having a payload in the header. Claim 25 includes, in part, “extracting the header from information extracted from initial call establishment negotiation” and “combining only relevant portions of the extracted header and payload, the relevant portions comprising a payload type header field. Claim 25 also recites “transmitting only the relevant portions of the extracted header, less than the entire header, and the payload to a remote unit.”

In the Office Action of April 18, 2007, the Examiner admits that Jonsson does not explicitly show a header compressor configured to compress only relevant portions of the extracted header, the relevant portions comprising the payload-type header field, and asserts that Svanbro “clearly suggests or discloses a header compressor configured to compress only relevant portions.” (See Office Action, page 3.) The Examiner has mischaracterized the references. Jonsson discloses a process for altering headers but does not teach or suggest combining only relevant portions of the extracted header with the payload and transmitting only relevant portions of the extracted header, less than the entire header, and the payload to a remote unit. Similarly, Svanbro does not teach or suggest transmitting less than the entire header to

a remote unit. Svanbro is directed to a technique for estimating time stamp data in a packet communication system. To achieve this goal, Svanbro discloses a separator 33 (see Figure 3) to extract the time stamp data field from the header and processes it separately from the remaining data fields of the header. The remaining portions of the header are compressed 302 and recombined with the compressed processed time stamp data to form a data header 22 (see Figure 3). Thus, Svanbro transmits all data header fields. The combination of references do not teach or suggest “transmitting only the relevant portions of the extracted header, less than the entire header, and the payload to a remote unit,” as recited in claim 25. Consequently, claim 25 stands in condition for allowance. Claims 26-30 depend from claim 25 and are also in condition for allowance.

ii. Conclusion of Arguments Heading I

As discussed above, the art of record, namely the combination of Jonsson and Svanbro do not contain sufficient teaching to render obvious to one of ordinary skill in the art at the time of the invention, the pending independent claims, namely claims 1, 7, 9, 17, 25, and 32, and consequently, does not render the dependent claims 2, 3, 5, 6, 10, 13-16, 18, 21-24, and 26-30 obvious either based on the claim language or at least in part on their dependencies. Thus, it is believed that all pending claims, namely claims 1-3, 5-7, 9, 10, 13-18, 21-30, and 32 are allowable.

VIII. CLAIMS APPENDIX

1. (Previously Presented) A call context processor operable in a wireless communication system having a base and a remote unit wherein the call context processor is operable in the base, the call context processor comprising:

a header extractor configured to extract a header from information extracted from initial call establishment negotiation;

a header compressor configured to compress only relevant portions of the extracted header, the relevant portions comprising a payload type header field; and

an identification module configured to establish context identification using the compressed relevant portions of the header wherein the base transfers the associated payload and payload type header portion, less than the entire header, to the remote unit.

2. (Original) The call context processor of claim 1, wherein the identification module associates the context identification with a bearer channel of a call established from the initial call establishment negotiation.

3. (Previously Presented) The call context processor of claim 1, wherein the compressed relevant portion of the extracted header will be transmitted to a remote unit with a payload wherein the header compressor not compressing portions of the header that will not be transmitted to the remote unit with the payload.

4. (Canceled)

5. (Original) The call context processor of claim 1, the header being an RTP, UDP, IP header.

6. (Original) The call context processor of claim 1, wherein the call context processor extracts information by processing a create connection message and an associated session data protocol header from the initial call establishment negotiation.

7. (Previously Presented) A transmission network for processing a data packet having a payload and a header, comprising:

a network; and

a base connected to the network that includes a call context processor, the call context processor comprising:

a header extractor configured to extract the header from information extracted from initial call establishment negotiation;

a header compressor configured to compress only relevant portions of the extracted header, the relevant portions comprising a payload type header field; and

an identification module configured to establish context identification using the compressed relevant portions of the header wherein the base transfers the payload to a remote unit and does not transfer the entire header to the remote unit.

8. (Canceled)

9. (Previously Presented) A call context processing method operable between a base and a remote unit, comprising:

processing a data packet having a payload and a header by extracting the header from information extracted from initial call establishment negotiation;

compressing only relevant portions of the extracted header, the relevant portions comprising a payload type header field;

establishing context identification using the compressed relevant portions of the header; and

transferring the associated payload and not transferring the complete header from the base to the remote unit.

10. (Original) The call context processing method of claim 9, further comprising associating the context identification with a channel of a call established from the initial call establishment negotiation.

11. (Canceled)

12. (Canceled)

13. (Original) The call context processing method of claim 9, the header being an RTP, UDP, IP header.

14. (Previously Presented) The call context processing method of claim 9, wherein extracting information from initial call establishment negotiation, and establishing the context identification are performed at the base of a transmission network.

15. (Original) The call context processing method of claim 14, wherein a remote unit accesses the base via airlink.

16. (Original) The call context processing method of claim 9, wherein extracting information comprises processing a create connection message and an associated session data protocol header from the initial call establishment negotiation.

17. (Previously Presented) A machine-readable medium having stored thereon a plurality of executable instructions, the plurality of instructions comprising instructions to:

process a data packet having a payload and a header to thereby extract a header from information extracted from initial call establishment negotiation;

compress only relevant portions of the extracted header, the relevant portions comprising a payload type header field;

establish context identification using the compressed relevant portions of the header; and

transfer the payload and only the compressed relevant portions of the header, less than the entire header, to a remote unit.

18. (Original) The machine-readable medium of claim 17, having stored thereon additional executable instructions, the additional instructions comprising instructions to associate the context identification with a channel of a call established from the initial call establishment negotiation.

19. (Canceled)

20. (Canceled)

21. (Original) The machine-readable medium of claim 17, the header being an RTP, UDP, IP header.

22. (Original) The machine-readable medium of claim 17, wherein extracting information from initial call establishment negotiation, and establishing the context identification are performed at a base of a transmission network.

23. (Original) The machine-readable medium of claim 22, wherein a remote unit accesses the base via airlink.

24. (Original) The machine-readable medium of claim 17, wherein the instructions to extract information comprises instructions to process a create connection message and an associated session data protocol header from the initial call establishment negotiation.

25. (Previously Presented) A call processing method for processing a data packet having a payload and a header, comprising:

extracting the header from information extracted from initial call establishment negotiation;

combining only relevant portions of the extracted header and the payload, the relevant portions comprising a payload type header field; and

transmitting only the relevant portions of the extracted header, less than the entire header, and the payload to a remote unit.

26. (Previously Presented) The method of claim 25, further comprising compressing the relevant portions of the extracted header.

27. (Previously Presented) The method of claim 26 wherein compressing the relevant portions of the extracted header is performed prior to combining the relevant portions of the extracted header with the payload portion.

28. (Previously Presented) The method of claim 25, further comprising establishing a call context using the relevant portions of the extracted header.

29. (Previously Presented) The method of claim 25 wherein the relevant portions of the extracted header are required for transmission of the payload to the remote unit.

30. (Previously Presented) The method of claim 25 wherein portions of the extracted header not required by the remote unit are not transmitted to the remote unit.

31. (Canceled)

32. (Previously Presented) A call context processor for processing a data packet having a payload and a header, comprising:

a header extractor configured to extract the header from information extracted from initial call establishment negotiation;

a header compressor configured to compress only relevant portions of the extracted header, the relevant portions comprising a source internet protocol (IP) address, a destination IP address, a source port, a destination port, a sequence number, and a time stamp; and

an identification module configured to establish context identification using the compressed relevant portions of the header wherein the call context processor transfers the payload and only the relevant portions of the header, less than the complete header, to a remote unit.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.

Respectfully submitted,
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